

A Work Project, presented as part of the requirements for the Awards of a Master's
Degree in Management from NOVA – School of Business and Economics

DESIGNING AND IMPLEMENTING A
PERFORMANCE MEASUREMENT SYSTEM IN
AUTO RIBEIRO, LDA.

Benedita Calheiros Pinto Nunes #1436

A Project carried out under the supervision of:

Professor Leonor Ferreira

June 2014

Abstract

In any business it is very important to measure the performance and it helps to select key information to make better decisions on time. This research focuses on the design and implementation of a performance measurement system in a Portuguese medium size firm operating in the specialized health care transformation vehicles industry. From the evidence that outputs from Auto Ribeiro's current information system is misaligned with the company's objectives and strategy, this research tries to solve this business problem through the development of a Balanced Scorecard analysis, although there are some issues, which deserve further development.

Keywords: Balanced Scorecard, Key Performance Indicator, Performance Management, Transformation Industry

1. Introduction

This work project (WP) is part of the output of a direct research with internship carried out in AUTO RIBEIRO, LDA. (AR), a Company which operates in the coachwork, trailers and semi-trailers manufacturing industry mainly for health care purposes. AR was formed in January 1976 and its equity is totally owned by Portuguese individuals who are part of the Company's management team. AR transforms vehicles of various types, such as ambulances, armored vehicles, wheelchair transport, mini buses, school children transport, workshops mobile vehicles. In 2013, the turnover of AR amounted to Euros 281,108 and the total assets were circa Euros 13,680,000. By the end of the year AR employed 164 workers, and this number is expected to increase to 170. AR plans to create a new distribution channel network, and exporting for more and more countries. In 2014, AR has four different established brands, known as ARAmbulance, ARBus, AREquipment, and ARSecurity, which reflect the main

markets. However, AR is specialized in the transformation of a wide range of ambulances and also new design vehicles for new born babies.

During the internship in AR, which was done between December 16th, 2013 and May 14th, 2014, I have noticed that the Company lacks sharing of information between the departments, what makes it difficult to make accurate decisions in the short-run. I have also noticed that some situations where this lack of information caused delay in important processes, namely when the clients demanded minor changes in the final product, sometimes those requests were not reported to the production department on time; and the production department work was approved by managers who had no comparison terms between suppliers, so they just approved the order without studying alternatives.

It was also observed that making decisions is too much centralized in the top management, there was no delegation of responsibilities to managers in each department, which were not authorized to make major decisions. AR has six departments (See Exhibit 1) and Business objectives are not set at departments' level and this could well be an important cause for low levels of employees' motivation. These situations happened for two reasons: in one hand there was this lack of information that makes impossible a department manager to take decisions on time and by the other hand the departments' managers always need to contact top management to solve any problems, which cause delays in the industrial process.

The role of information systems carried out in a company is expected to support an effective strategy, to contribute to its profit and gain a competitive advantage over its peers. In order to solve these problems, an upgrading of Balanced Scorecard (BSC) framework is proposed for AR. Companies need to apply performance measures that

adequately fit to their size and needs (Bortoluzzi, Ensslin and Rodrigues, 2010; Hudson, Lean and Smart, 2010). However, each company is a specific case, so, it implies different scorecards that “fit their mission, strategy, technology and culture” (Kaplan and Norton, 1993).

Public, private and non-profit organisations have been using the scorecard framework successfully, to realise and integrate the strategic contribution of all relevant organisational value drivers, for two key reasons: Firstly, it helps to ensure consistency and alignment between the non-financial and the financial measures, (this helps to facilitate the alignment of the measures and strategy). Secondly, it helps to identify and measure the specific value drivers that underpin performance, and this allows managers to test their hypotheses on what is driving organisational outcomes.

Adopting a set of KPI according to balanced scorecard pre-defined areas in AR should focus the Company in future success by setting objectives and measuring performance from distinct perspectives and provides interconnected information in key areas of the Company. A set of objectives linked and KPI measurements that are consistent and mutually reinforcing is designed. The BSC is an appropriate approach since it fits to AR due to the focus on the definition of values and strategic vision that will be very useful in the internationalization strategy definition process.

This WP proceeds as follows. Section 2 reviews the literature about the BSC, and compares it to other performance measurement systems. Section 3 outlines the methodology of business problem solving research adopted at AR, while developing the BSC. Section 4 depicts the diagnosis of AR and Section 5 the design of AR new project. Finally Section 6 concludes with the summary of the recommendation and main contribution of this WP, limitations and possible future research.

2. Literature Review

While some studies focus in the characteristics that a performance measurement system (PMS), such as a BSC should have, others research empirically describe cases of implementation and challenges that companies faced in designing and implementing PMS (See Exhibit 2). Apart from BSC, Many PMS¹ can be used by companies, namely MBO², Tableau de Board, Budgeting, and BSC (See Exhibit 3 and 4). This section is two folded: first, it introduces and reviews the key concepts in BSC, comparing and balancing their pros and cons to alternative PMS tools; secondly, this section refers the use of BSC in the automotive and healthcare industries, where AR operates.

2.1) Core Concepts in PMS

According to Pinto (2007), an objective can be defined as a quantified description about a given action that organizations should carry out to comply with the established strategy, and may be regarded as a performance desired. In turn, an indicator of performance is used to measure performance against objectives or goals. Piglet & Restivo (2003) argued that when choosing a performance indicator, this should be tested for ensure reliability and more standardized as possible so that the collection and analysis of data performance is accurate and understandable and can be interpreted differently, regardless of who analyzes.

Among the tools designed to improve corporate performance, the BSC has been the most popular. Originally developed as a performance measurement tool, the BSC is now associated increasingly with strategy implementation. It is a management

¹ Tableau de Bord (TdB) had no accounting perspectives and it is a PMS with especially impact in Europe. This system suffered various evolutions through time and only in the 80's the concern about having a component closer to management started.

The objective of the TdB is to select a set of financial and non-financial indicators for each key business unit to monitor and lead the company to achieve and adopt the right decision. It a system "focused on monitoring physical and financial indicators to assess and anticipate performance" and encloses three levels of management: strategy, management and operations.

There are some differences between BSC and TdB (Appendix 1). In TdB objectives are established by managers in a free way, which increases the subjectivity in their determination, while BSC is more a "ready-to-use" tool.

² An MBO is a system in which superiors and subordinates work together to define individual goals which are in line with those set up for the enterprise (Mamoon, 2013).

framework with the potential to identify and exploit organisations' key value drivers to their best strategic advantage. According to Kaplan and Norton, "the Balanced Scorecard translates a mission and strategy of an organization into a comprehensive set of performance measures that provides the framework for a strategic measurement and management system" (1996:64). This strategic management system measures organizational performance in four 'balanced' perspectives, namely, Financial, Customer, Internal Business Process and Learning & Growth. The FINANCIAL PERSPECTIVE has the same objective of a traditional performance measurement system: it means looking for profits. The CUSTOMER PERSPECTIVE has the objective of attracting the attention and retaining targeted customers. The INTERNAL PROCESS is related to the resources that a company has available to manage its needs. Finally, LEARNING AND GROWTH PERSPECTIVE has the mission of developing in the market in the long run. Parmenter (2002) suggests that the four perspectives of the BSC should be complemented by an Employee Satisfaction section and an Environment/Community section. The BSC contains a set of performance measures that should be thought of in terms of going concern (Manzoni and Epstein, 1998). Thus, each strategic area should have indicators of "driving" and "results" and form a chain of cause and effect (Kaplan and Norton, 1996b). Ramos & Caeiro (2009) defend that the correct choice of performance indicators is essential to enable a transparent and objective assessment of the performance of activities, and stakeholders' involvement is a key factor in that choice. According to Major and Janota, "The success of the BSC relies on a transparent and well defined strategy as the basis for the development of specific and relevant performance measure" (2012: 245).

Contrary to Kaplan and Norton, Bessireaker (2005) argues that the four perspectives of BSC have an uncertain part, as he classifies Financial and Customer Perspective as components that are just noticed as goals and objectives. The author concludes that BSC is not based in any conceived theory strategy. The BSC has its weaknesses, especially concerning its theoretical background, but in practice, it reveals to be appropriate to management control.

Kaplan and Norton believe that strategy must be represented as a chain of cause-and-effect relationships among the objectives, and thus, in a BSC, the objectives must be both consistent and mutually reinforcing, and form a strategy map. This map can be divided in vertical slices (three to five) consisting each of a distinct set of strategic objectives. Opposing to Kaplan and Norton, Norrenklit (2000), defends that the strategic map of BSC does not reflect the whole strategic plan that an organization needs for different scales of time in the analysis of the cause-effect relation between the indicators; cause-effect section between performance measurements does not include time as a dimension; employees are not represented in the definition of goals and strategic measurements and a careful assessment to the external environment is lacking. According to Kaplan and Norton the four characteristics that make BSC special remain because it is a top-down reflection of the company's mission and strategy, deriving from local activities or *ad hoc* processes, they are often irrelevant to the overall strategy; it is a forward looking process, since it addresses current and future success by indicating how managers can improve performance during the next periods; it integrates external and internal measures by helping managers see where they have trade-offs between performance measures in the past and helps ensure that future success on one measure does not come at the expense of another and finally it helps company's focus

by requiring managers to reach agreements on only those measures that are critical to the success of company's strategy.

Kaplan and Norton divide the strategy in four processes that bind short term activities to long term objectives: translating the vision by relying on measurement, the scorecard forces managers to come to agreement on the metrics they will use to make their lofty visions operational. Communicating and linking when a scorecard is disseminated up and down the organizational chart, strategy becomes a tool available to everyone. Business planning most companies has separate procedures (and sometimes units) for strategic planning and budgeting. Designing and implementing a BSC forces a company to integrate the two functions, thereby ensuring the financial budgets to support strategic goals.

2.2) Balanced Scorecard in automotive industry

The literature about design, implementation and use of BSC in the automotive industry is still scarce. However, authors conclude about its benefits for this industry.

Harland's (1997) studies the European automotive supply chains and concludes that chains in Spain and United Kingdom have different operational requirements and different positions in the supply chain demand different operational requirement. Moreover the author concludes that it is necessary to identify each chain player's role in contributing to satisfying the requirements of final customers.

Schmitz and Platts (2003) illustrate how European automotive manufactures evaluate and assess performance of their suppliers. The found that suppliers who obtained the highest overall performance score did not get the highest performance score on every main-criterion. More recently, Habidin et al. (2012), review the relationship between the strategic control system and organizational performance for Malaysian automotive

industry, concluded that strategy and performance tools provide useful guidelines and references to the automotive industry especially to automotive suppliers.

The conversion of vehicles into ambulances failed to adequately monitor the progress of other areas related to relief and emergency, current indoor of ambulances are in many aspects similar to those that existed at about 20 years (Helen Hamlyn, 2011). Concerning healthcare, comfort and performance, additional research is needed, namely about the tasks performed and the postures adopted by health professionals, it stands out assistance, treatment and transport of critical patients, including disasters (Ferreira & Hignett, 2005). Knowing that AR is redefining its strategy due to its on going internationalization process, the new projects under development as well as the company's needs, and analysing the Balanced Scorecard characteristics, its pros and cons concludes that BSC is the appropriate approach AR. In fact, focusing on the definition of values and strategic vision (which is subject to actions to develop framework in the four mentioned BSC key perspectives of), and in the important management components, this fits and supports AR needs and the Company's key indicators.

3) Methodology

This work project adopts a problem solving methodology, which is appropriate for the business setting. Firstly, it describes the AR history and activity, diagnosis the problem that needs to be solved at AR and finally presents a solution. The need to design and implement a PMS in an integrated way was felt. It facilitates decision making and performance evaluation by AR top management, and helps communication flows in the company for sharing information. The Balanced Scorecard approach has explicit and understandable advantages for this purpose and is proposed for the Company.

This research uses both primary and secondary sources of evidence. Secondary data include letters, accounting documents, and other software outputs.

Primary data was obtained in semi-structured interviews with AR top and middle managers, and also in meetings in the company. It consisted of interviews which helped to obtain information to do the diagnosis and later evaluation of the effectiveness of the solution proposed by this work project. In the first phase, interviews were carried out in order to establish a Balance Scorecard for AR (See Exhibit 5). Two persons of each department were selected for each perspective of the BSC, and previously the purpose, advantages and uses of Balanced Scorecard were discussed with AR's employees.

. The questions ³ were as follows:

RQ1: Are AR objectives clearly stated?

Who set them?

Who is responsible for their achievement?

RQ2: Who has access to the information you need to perform your job?

How does information flow between departments?"

What information exists?

RQ3: Which are the indicators for the performance measurement?

Who should compute/apply them?

When frequency is recommended?

Who controls the results?

The CFO (Mr. Luis) and the chief accountant (Mrs. Manuela) were active parts when defining the KPIs for the FINANCIAL PERSPECTIVE, while three people from the commercial team who are responsible for the various geographic areas (North, South and Central, respectively) provided the information necessary to the KPI'S for the CUSTOMER PERSPECTIVE (Antonio, Maria, and Miguel), respectively. Regarding the

³ Questions linked with AR's issues in order to define KPI's

INTERNAL AND GROWTH PERSPECTIVE, the KPIs were defined with the AR's CEO (Eng. Martins Fernandes), together with the production and R&D departments.

4) Diagnosis of AR Mission, vision and strategy and the actual information system

This section describes the company, what is essential in view of understanding its information needs concerning the PMS and BSC design and implementation.

According to Kaplan and Norton (1996; 2008), when designing the BSC, the first steps should be “translating the vision” and “communicating and linking”. Regarding this issue, the AR CEO, Mr. Martins Fernandes, says that:

“AR works and cooperates with its clients in order to produce the transportation solutions which fit them best. AR is present in markets with respect for clients, suppliers and their competitors.”

“AR focuses in innovation and development, but AR needs to be very agile to build up what has been created.”

“AR believes in an industrial leadership, in a conscientious distribution strategy and in commercials that impose with honesty AR brands in the world.”

“The vision for the future, it that AR will be a group of multinational companies, which is present in various markets either through distributors or directly through subsidiaries in attractive markets ,”.

“AR. has since its formation a set of values, which define how employees should behave, in interactions with colleagues either inside or outside the company, with customers and suppliers. Thus, the values statements describe actions that revive the values that should be protected and promoted by the employee.”

Kaplan and Norton suggest using Michael Porter competitive advantage to understand how a company competes. AR focuses on product differentiation, and the customers perceive that AR products are unique and of high quality. Thus, the company should invest on research and development of products so that it a broad range of choice can be offered to them. One critical success factor is raw materials, which is key so that AR clients feel special and unique and perceive AR products as standing out from products offered and services provided by AR's competitors.

The management team wants to increase sales growth per segment through the emergence of innovative solutions in the market. To succeed in this strategy the main goal is to decrease time to develop next generation products.

During 2012, the Company suffered significant threats. On one side, the Portuguese domestic market decreased about 70 per cent, and one important French client gave up ordering ambulance services to AR (EUR 4.000.000, of the total sales). The European standards are becoming more comprehensive and request more advanced solutions and to look for alternative and new markets, AR is challenged to improve its technical skills. AR received support from the National Strategic Reference Framework (NSRF) for two activities, which are developing a new ambulance project (a new mobile medical emergency unit) and for the internationalization process⁴.

In order to respond to the decrease suffered in the domestic sales, AR upgraded its brands, streamlined it, and entered new markets either directly or through distributors. AR created a new brand image (See Exhibit 6) and an internationalization strategy. AR new strategy was necessary to adopt a set of KPI with the purpose to evaluate and make recommendations to improve the company.

Regarding the information available for decision, the software currently in use in AR provides various types of information, in areas such as Accounting, Tax Compliance Management and Human Resources.

⁴ NSFR provides a system of incentives for research and technological development in companies' one project which aims to develop a new mobile medical emergency unit.

Table 1 describes the current information system in AR

Management	Accounting
<ul style="list-style-type: none"> • Invoicing to clients • Receipts from clients • Inventories Management • Model 40 - Leasing • Purchases from suppliers • Payments to suppliers • Customer Management 	<ul style="list-style-type: none"> • Accounting Budgets • Journals • Customer Management • Supplier Management • Clearance of value added Tax • Calculation of the result • Depreciation
Production	Human Resources
<ul style="list-style-type: none"> • Inventory of Physical assets • Depreciation and Revaluations • Tax Files and Reports (Dossier Fiscal) 	<ul style="list-style-type: none"> • Processing salaries • Absences and overtime • Management expenses • Management of rental and subsidies

The system allows doing analysis of each item mentioned in Table 1. Information is also obtained from the balance sheet and the income statement. The system in use includes various elements of the BSC in different areas, such as Human Resources and Finance. The system management module is the management software currently in use in AR. It allows managing clients and suppliers, inventories and orders, treasury and banks, virtually all vital areas of an organization. The Accounting module is an accounting software solution that integrates financial and enables the control of the financial accounting compliance and cost accounting. Additionally the Production module automatically processes the amortization / depreciation and revaluations of assets. Finally, the Human resources module deals with payroll obligations and goes further in monitoring the development of each employee, manages the entire cycle of its presence, indices of absenteeism, to get everyone focused on the objectives of the company.

However the system of information currently in use has some weaknesses due to the difficulty to find the information in the system and the cause effect links are absent. The CFO works with the Management section and in the recruitment process and the chief

accountant deals with the Human resources (salaries) and Accounting sections which has the consequence that the chief accountant works too hard and sometimes fails to terminate all the tasks. Since the human resources area is divided between the CFO and the chief accountant and due to the fact that the information does not circulate or even does not exist, sometimes occurs that the chief accountant does not know that the CFO accepted new job orders, and new works have started. A Major concern is the lack of important information and repeated data (See Table 1) in each section of the system. Besides the observed weaknesses of the system currently in use, some obstacles were found when starting the implementation of a BSC AR. This conclusion sorts out after the first round of interviews. Knowing that low level of motivation to adopt changes and possible misunderstanding by some staff people can lead to the disruption of this project as well as the lack of communication since without this factor the implementation of the BSC will never be fully completed. Also the existence of too many indicators and objectives contained in the BSC associated with poor comprehension and involvement of employees due to the introduction of new concepts is a very high threat. Thus, I propose, in accordance to AR management team a new project inspired in the BSC which will bring benefits for AR in three main aspects: more easily identify the need to implement new programs, products and processes critical to counter the new threats that are common in enterprises that operate in rapidly changing environments and it encourages dialogue between the business units and executives of the organization in relation to the objectives in the short and long term and is more impactful for companies aiming to make organizational changes (Kaplan and Norton, 2000). Also the BSC translate the mission and strategy of AR into a comprehensive set of key performance measures. However, going concern recommend starting from the system which

currently in use, and adapt it, keeping part of its information and adding new items. This is justified having in mind that the employees already know the system and will take advantage of using instead of implementing the four traditional perspectives of BSC. In the new sections the main goal is to add new important areas that do not exist, create KPI's (See Exhibit 7) to measure them and select one department responsible for each section, in the management perspective, the new areas are related with:

Table 2 describes the information system readapting a BSC for AR.

Department	Commercial section	Department	Financial section
CFO	<ul style="list-style-type: none"> • Invoicing to clients • Receipts from client • customer management • Inventories management • Supplier management • Purchases of raw materials and merchandises • Payments to suppliers • Model 40 - leasing • Accounting budgets 	Chief Accountant	<ul style="list-style-type: none"> • Filing of tax file (VAT, with holding income tax • Journals • Clearance of value added tax • Financial reporting • Capital budget • Depreciation and revaluations • Tax files and reports (<i>Dossier fiscal</i>)
	Production section		Human Resources section
Production	<ul style="list-style-type: none"> • Production budget • Production control • Quality control • Control of production process 	Chief accountant assistance	<ul style="list-style-type: none"> • Processing salaries • Absences • Overtime • Management expenses • Annual training • Career management • Annual training plan

With the implementation of this project AR will consistently measure business performance and that helps the Company making the “right decisions, on time, every time”. In order that this approach may be useful, the organizational chart of AR should be adjusted (See Exhibit 7). In fact, this is also a needed due to the on going restructuring of market areas of the company, and due to the recent expansion to new markets.

5. Design AR new project inspired in BSC

This section describes the stages of the design a KPI'S in AR. This process was supported and developed according with the interviews which supplemented the lack of information flow in AR. The implementation was supported and motivated by the top management, specifically, the CEO who actively participated in explained the strategy, AR vision ,mission and strategy and helped to summarize the SWOT⁵ (See Exhibit 9) analysis and Porter's five forces model (See Exhibit 10)

AR main goal regarding internationalization is to become the leader in the transformations of vehicles sector in the European market, thus AR strategy includes the opening of subsidiaries in various countries, namely Spain, France, Dubai, Portugal and Brazil (See Exhibit 11). I had five interviews with the director of the company, Eng. Martins Fernandes, and is currently in charge with implementing the strategy, establishing relationships with forward customers/collaborators and look for new opportunities (markets and segments).

According to Kaplan and Norton (2008) five steps describe the design and implementation of a system for strategic planning, operational execution and feedback and learning. In order to get a better insight into AR strategy, which is preliminary to designing and mastering the BSC, some interviews were conducted. AR has invested significant amounts in R&D and the main mission of the Company is to develop new products so it is important to increase revenue from new products. The COMERCIAL SECTION will help AR to be concerned about the quality of its products and services, their costs, customer service and satisfaction, and the effectiveness of delivery. Regarding the mission of AR it will be important to increase the win proposal rate and at the same time increase the percentage of client satisfaction. The main goal is to

⁵ Strengths, Weaknesses, Opportunities and Threats.

understand if new products will have a good impact on the client's perspective. The key performance measures under the Production section may include manufacturing efficiency, quality, and defects rate continually improving the production process. In AR, the key activity in this perspective is to shorten time to develop next generation of products, and AR has decided to invest in new software for the production part. With this new tool, AR will be able to evaluate the production department and, subsequently, increase labour efficiency and decrease processes time, increasing productivity. It is also worth to mention that AR deals with non-profitable organizations, such as fire-fighters associations and the Red Cross, and the Company exports more and more to companies located out of the Eurozone. Thus, the issue is too decreasing credit and foreign exchange risks. Finally, the HUMAN RESOURCES SECTION can determine organization future in which it develops employee skill, satisfaction and innovation of new market development. In this area AR faces the lack of information to support manager's decision and the lack of information flows between and communication among all the departments. In order to solve this problem, managers must increase the involvement with decisions by meeting with employees and understand what they think about undergoing projects and then positioning them to make decisions about it. It will also increase both employees' motivation and recognition and so encourages creativity. The lack of operational information, enabling decision-sustained and sustainable decisions in an uncertain market environment the elimination of the void that exists between strategic and operational fields and the poorly defined, repeated and disconnected metrics are just some motivations for the implementation of KPI's in AR. The company should have depicted metrics with visual indicators that are easily understood. In addition, metrics need to be collected at the ideal frequency for making

decisions, and defined in such a way that the measurement can be consistently applied across the firm. Accordingly with RESPONDENT F (Quality Manager):

"The fact that the director of the quality department and the production department is the same person regularly results in dispersion of data that gives rise to non-conformities. That is why I (Isabel Pereira) will be responsible for the quality department I believe that the BSC can help make them more clear and precise objectives, for example, there is not an examination of errors in the delivery process"

Also the company has a non-efficient data collection and reporting systems. The metric value changes on a daily basis and there is no responsible one to evaluate this changes and reporting to top management. According with RESPONDENT E:

"We do not have clear objectives and the ones we have are very dispersed. We should focus on the essential"

A common quoted problem is the lack of information flows among departments.

Regarding the financial department Respondents E and G affirm respectively:

"There is a failure in communication when there is change in previously signed contracts, from the top level of management to the other departments. The problem is that often these changes are orally made and frequently are not communicated to the departments which sometimes damage the image and explains failing deadlines". (RESPONDENT E)

"There is an excessive lack of information, especially in the inventory system (stock management). AR needs to improve the cost accounting in order to have more and better information; the problem is that there are no resources for this". (RESPONDENT F)

Regarding the R&D and Commercial departments the problem is more serious since these departments deal with clients' satisfaction. When interviewed, RESPONDENT H mentioned the following:

"Uncomplete information comes to this department which often results in the developed product not meet customer needs. The process should be commercial department – R&D department - commercial department - production, so the commercial department could review the final product and verify if it is according to the client's request.

Also this problem is noticed by the marketing department. RESPONDENT I sustains that:

"This is a new department and I started worked a few weeks ago, but I already realized that there is an share of information problem. The big difficult is that I waste hours asking for the authorization for each responsible for every process of my work which makes it difficult to progress with work and meet delivery dates." (RESPONDENT I)

When designing a PMS for AR, several aspects were taken into account: (1) focus in both financial and non-financial aspects; (2) KPI's focused on new product development; (3) KPI's adapted to AR activity.

1. Focus in both financial and non-financial aspects: the top management refer that:

“Both financial and non-financial aspects are relevant. In on hand, since we don't have analytical accounting, it's difficult to understand in each core business we are losing or make money. On the other hand, and due to the lack of communication, we need quickly to decrease the customers complains.”

2. KPI's focused on new product development: the CEO, mentioned that:

“In order to fit with the strategy of the company our main goal is to decrease time to develop next generation products through increasing employee's encouragement to be creative.”

3. KPI's adapted to AR activity: in this aspect the CEO stated that:

“It will be critical to control the budget of each core business. We also want to control production process in order to understand who are the productive employees are and which employees are in the wrong production department”

Table 3 indicates the KPI's defined with the top management during the second round of interviews.

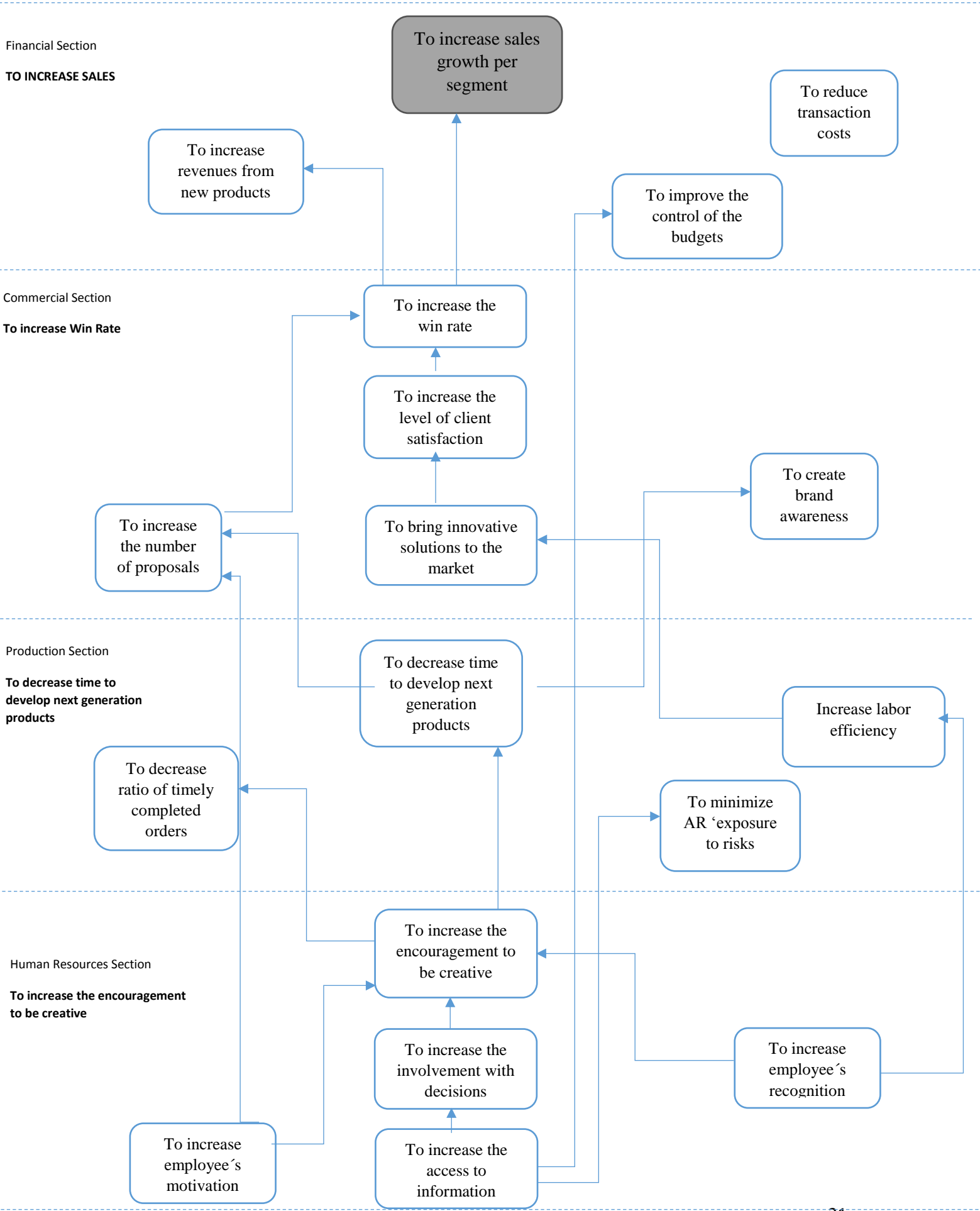
Sections	KPI
Financial	<ul style="list-style-type: none"> • Sales growth by segment. • Revenues from new products. • Control of the budget by segment. • Number of sales per customer. • Unit cost per transaction.
Commercial	<ul style="list-style-type: none"> • Number of proposal rate. • Number of win rate.
Production	<ul style="list-style-type: none"> • Time to develop next generation of products. • Production labour times. • Labor efficiency. • Ratio of timely completed orders. •
Human Resources	<ul style="list-style-type: none"> • Encouragement to be creative. • Employee productivity.

The HUMAN RESOURCES PERSPECTIVE, since it is a long-run perspective can be redefined on the next months, and is not part of this work project.

AR Strategy Map

The strategy map (see Figure 1) for AR was structured after the AR diagnosis and it defines how AR “creates value by connecting strategic objectives in explicit cause-and-effect relationship with each other in the four BSC perspectives” (Kaplan and Norton). The strategic map takes into consideration the employee’s needs and the strategy of the company. The employees defined the KPI’s, the frequency, and who is responsible for the calculation of each KPI. The target was defined, in all the perspectives, by Eng. Martins Fernandes.

Figure 1 – Strategic Map



Regarding the Human resources section the main goals were chosen taking into consideration the mission of innovation and development. The two main goals are to increase the encouragement to be creative and increase the employee productivity. For the first goal be achieved it's necessary to increase motivation and recognition of AR employee's. In order to have creative employees they need to be motivated and have feedback about their work. When AR employees became motivate, the next step is to increase the involvement of each employee with decisions and for that the access to information of each employee must also increase. The combination of this two variables will allow the control of the budgets. With motivated employees the labour efficiency increases and at the same it is possible to decrease the ratio of timely to complete orders. These two will allow AR decrease time to develop next generation products. When AR decreases time to develop next generation products, this should focus on price, quality and satisfaction because these variables together will increase the proposal rate. At the same time brings innovative solutions to the market, it will allow AR to create brand awareness and increase the win rate. On the other side when AR increases the level of client satisfaction the sales per segment will increase, the revenues from new products will also increase. After being introduced to the new PMS, praises and complains were made during the second round of interviews performed in April 2014, after the system develop. The questions of these interviews following the same structure, and the answers remain the same. The CEO said that:

Implementing KPIs will be difficult in the beginning but will not be impossible; we are facing a process of internationalization and unless we have appropriate indicators and clear objectives and strategy we can easily lose our way.

And other employees mentioned the following:

I anticipate that it will be very complicated the implementation due to the age group of people! The KPIs are well laid out functional, but to implement them effectively will be for sure easier if we were younger team and I am afraid some colleagues are not willing to change, especially at the department responsible level. [CHIEF ACCOUNTANT]

These indicators make sense and thinking my opinion they are suitable for measuring the performance of the various areas in the company. However, it will be hard to implement them due to vices and aversion to change of some employees. The KPIs are well defined and intertwined with strategy. I think it will be challenging to implement them due to limited degree of freedom to make decisions. [RESPONDENT F and RESPONDENT]

AR top management was one of the main reasons why a PMS was developed, though, the interviews process, it was clear that there are some communications and information gaps that need to be fulfilled, but at the same time it is notice a lack of effort, in employee's perspective, to implement this PMS.

6) Conclusions

This research focuses on the design and implementation of a performance measurement system in a Portuguese medium size firm operating in the automotive industry, and it provides evidence of the importance of using KPI and an integrated approach to performance measurement, such as balanced scorecard in a company. This is part of the output of an internship conducted at Auto Ribeiro, Lda. .The research adopts a methodology of business solving problem and AR main issue that sorts out of diagnosis is the lack of information to support management as well the communication among the departments.

Designing and implementing KPI's in AUTO RIBEIRO, LDA focusing the future success by setting objectives, measuring performance from distinct sections and establishing communication and integrating key areas was the purpose of this WP. The support and collaboration of AR' employees was a must in many areas, namely, financial, quality, R&D, marketing and commercial and with the CEO of AR. The existence of too many indicators and objectives contained in the BSC associated with poor comprehension and involvement of employees due to the introduction of new concepts makes impossible to implement a BSC in AR so the suggest solution was a new project inspired in the BSC which will bring benefits for AR in two main aspects:

more easily identify the need to implement new programs, products and critical processes and it encourages dialogue between the business units in relation to proposal KPI's. The implementation of KPI's will have a positive impact in effectively manage the business and, finally, the most important aspect: to establish a system for measuring AR business performance and to allow the "right decisions, on time, every time".

When developing the proposed PMS, some limitations emerge. In a financial perspective it is vital to control the budget in each activity but AR's current software made it hard to access. Additionally some indicators are difficult to measure due to the information system, and thus were left to a future phase.

Some recommendation for the next future is as follows. A client's satisfaction survey should be implemented: AR should have a survey with a range of answers between (not satisfied; very satisfied). This will allow the company to understand if clients are satisfied. Also enquiry should be done to ask to in order to understand why some clients cut relationship with AR and what can be done to make business again; Create an after sale service/contact, to evaluate/certify that the final product is in accordance with the customer's request. Additionally, the company could send an appreciation letter for chosen AR customers; To increase overall satisfaction with AR, what could be a benchmarking exercise of AR performance with the goal of comparing AR performance to its competitors; Delegation of decision making powers and change of IT system and finally the target definition of each KPI.

At this stage, having developed the PMS for AR, it is critical to apply it to AR and test it. A more deep exploration of the Human Resources Perspective. Since the Company is formulating a five to ten year strategy and it is a long-run perspective it will be important to redefine this section.

References

- Bessire, D. Baker, R. (2005).** "The French Tableau de Board and the American Balanced Scorecard: A critical analysis". *Critical Perspectives on Accounting*, 16 (6): 645 – 664.
- Bourne, M., Neely, A., Mills, J. and Platts, K. (2003).** "Implementing performance measurement systems: a literature review". *Int. J. Business Performance Management*, 5 (1): 1-24.
- Bourne, Mike; Neely, Andy; Platts, Ken and Mills, John, (2002).** "The success and failure of performance measurement initiatives". *International Journal of Operations & Production Management*, 22 (11): 1288-1310.
- Bryan, E. Gilad, I., (2012).** "Design considerations to enhance the safety of patient compartments in ambulance transporters". *International Journal of Occupational Safety and Ergonomics*, 18(2): 221-231.
- Christine Harland, (1997).** "Supply Chain Operational performance roles". *Integrated Manufacturing Systems*, 8 (2): 70-78.
- Dauids, Stan, and Tom Albright, (2004).** "An investigation of the effect of Balanced Scorecard implementation on financial performance". *Management Accounting Research* 15 (2) (June): 135-153.
- Ferreira, J. & Hignett, S. (2005).** "Reviewing ambulance design for clinical efficiency and paramedic safety". *Applied Ergonomics*, 36(1): 97-105.
- Ghaith M. Al-Abdallah, Ayman B. Abdallah & Khaled Bany Hamdan (2014).** "The Impact of Supplier Relationship Management on Competitive Performance of Manufacturing Firms". *International Journal of Business and Management*, 9 (2): 192-203.
- Gilad, I., Brian, E. (2007).** "Ergonomic evaluation of the ambulance interior to reduce paramedic discomfort and posture stress. Human factors". *The journal of the human factors and ergonomics society*, 49(6): 1019-1032.
- Habidin, N. Yusof, S. Omar, Mohamad, B. Janudin, S. (2012).** "A proposed strategic Balanced Scorecard model: strategic control system and organizational performance in Malaysian automotive industry". *Journal of Business and Management*, 2278-487X 1 (6): 39-44.
- Hudson, Mel; Smart, Andi and Bourne, Mike, (2001).** "Theory and Practice in SME Performance Measurement Systems". *International Journal of Operations & Production Management*, 21 (8): 1096-1115(20)
- IBM Institute for Business Value (2003).** "Connecting with the automotive customer: driving revenues through lifetime relationships"
- J. Schmitz, K.W Platts, (2003).** "Roles of supplier performance measurement: indication from a study in the automotive industry". *Management Decision*, 41 (8): 711 – 721.
- Kaplan, Robert S., and David P. Norton: (1992).** "The Balanced Scorecard, Measures That Drive Performance". *Harvard Business Review* 70 (1) (February 1): 71-79.
- , (1996).** "Leading Change with the Balanced Scorecard". *Financial Executive* 17 (6) (September): 64 – 66.
- , (1996).** "Using the Balanced Scorecard as a strategic management system". *Harvard Business Review*, 74 (1) (February): 75 – 85.
- , (1993).** "Putting the Balanced Scorecard to Work". *Harvard Business Review* 71 (5) (September): 134-147.
- , (2001).** "Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part II. *American Accounting Association Accounting Horizons* 15 (2): 147–160.
- Porter, M. E. (1987).** "From competitive advantage to corporate Strategy", *Harvard Business*, 65 (3) (May –June): 43-59.
- Porter, M. E. (1996).** "What is Strategy?" *Harvard Business Review*, 74 (6): 61-78.
- Ramos, T. B., & Caeiro, S. (2009).** "Meta-performance evaluation of sustainability indicators". *Ecological Indicators*, 10 (2):157-166.
- Smith, M. H., & Smith, D. (2007).** "Implementing strategically aligned performance measurement in small firms". *International Journal of Production Economics*, 106 (2): 393-408.
- Syed, M., Bresson, C., & Moskowitz, M. (2007).** "IT Framework for the Implementation of Balanced Scorecard in Healthcare Systems", *NESUG 2007, Baltimore: SAS Institute Inc.*
- Zakuan, N. M. (2009).** "Structural analysis of total quality management, ISO/TS 16949 and organizational performance in Malaysian and Thailand automotive industry". Phd Thesis, *Faculty of Mechanical Engineering, University Technology Malaysia, Malaysia.*
- Zimmermann, K. Seuring, S. (2009).** "Two case studies on developing, implementing and evaluating a BSC in distribution channel dyads." *International Journal of Logistics: Research and Application*, 12 (1): 63- 81.

Exhibit 1 – Organizational Chart

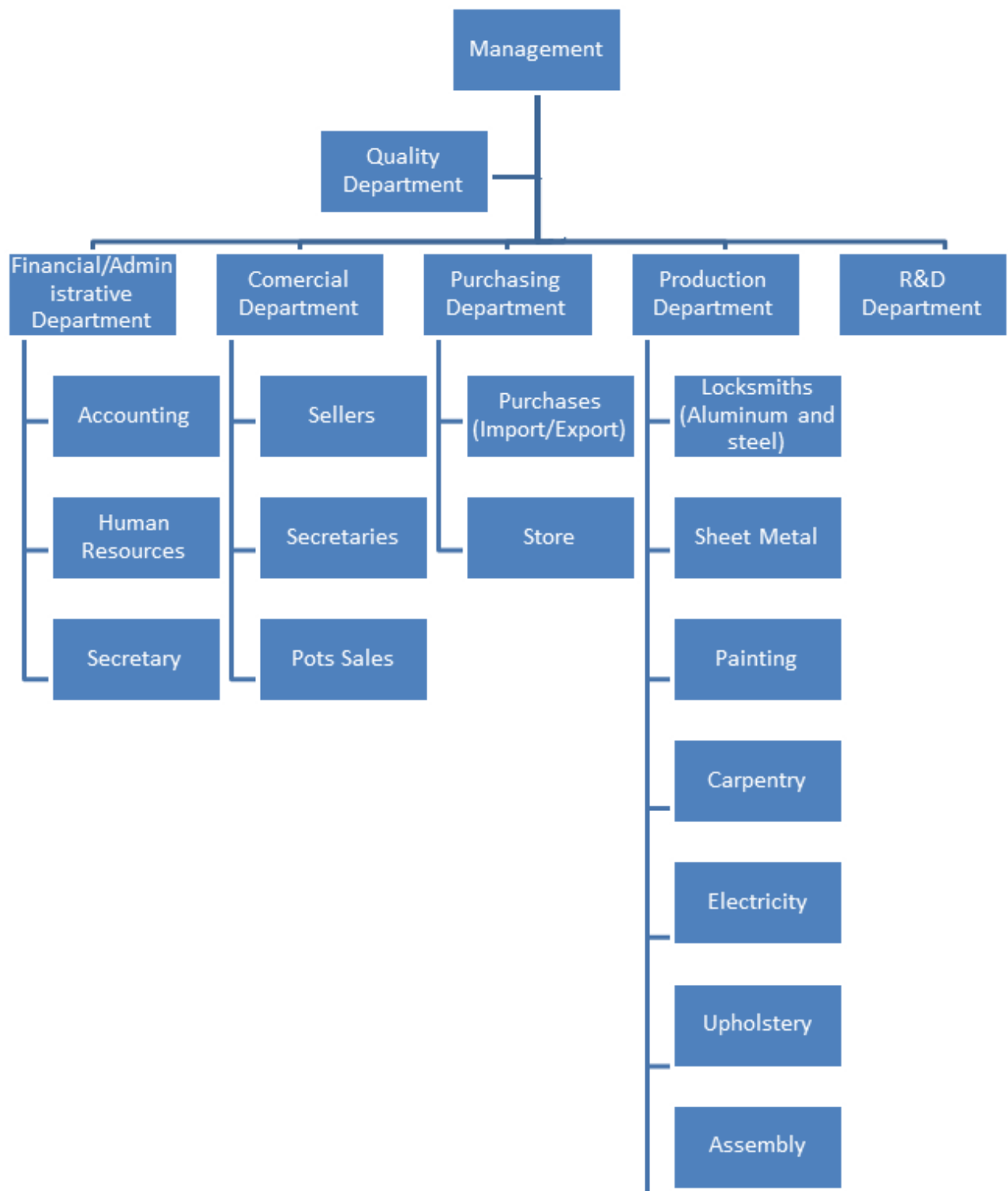


Exhibit 2 – Literature Review

Author	Country	Subject	Methodology	Industry	Stage of PMS	Results
Kaplan, Robert S., and David P. Norton (1993)	Arkansas	What makes a balanced scorecard special?	Case Study	Engineering and construction company	Use	Rockwater's senior management team transformed its vision and strategy into the BSC four set's of performance measure
Sellitto, Borchardt, Pereira (2006)	Brazil	Proposes a Multicriterial framework for strategic performance assessment, particularly for the urban passenger transportation operation, which is then compared to other companies PMS operating in the same sector.	Case Study	Collective transportation sector	Use	
Kaplan, Robert S., and David P. Norton (1992)	N/A	During a year-long research project with 12 companies at the leading edge of performance measurement, Kaplan and Norton devised a "balanced scorecard"-a set of measures that gives top managers a fast but comprehensive view of the business	Case Study	Airplane	Use	The BSC lets companies see whether improvement in one area may have been achieved at the expense of another. The use of BSC have demonstrated that it meets several managerial needs.

Author	Country	Subject	Metho dology	Industry	Stage of PMS	Results
Robert S. Kaplan (2010)	U.S.	How weel the principles of John Kotter for leading successful change apply to the six - stage strategy executions systems that Kaplan and Norton discribed in the exectution Premium	Case Study	Police Industry (FBI)	N/A	N/A
Bourne, Mike; Neely, Andy; Platts, Ken and Mills, John (2003)	U.K.	This paper reviews the different performance measurement system design processes published in the literature and creates a framework for comparing alternative approaches.	Literat ure Review	Commerce	N/A	Difficulties in evaluating the relative importance of measures and the problems of identifying true 'drivers'

Author	Country	Subject	Metho dology	Industry	Stage of PMS	Results
Zimmermann, K and Seuring, S (2009)	German y	Two case studies on developing, implementing and evaluating a BSC in distribution channel dyads.	Case Study/ Literat ure Review	Distribution channel	N/A	Two major limitations on the approach: First only dyadic relationships have been assessed and second the issue that both BSCs were discontinued after some time comes into play
Schmitz and Platts (2003)	Europe	The research illustrates how the European Automtive Manufactures evaluate and asses performance of their suppliers. The main objective of this study is to develop supplier performance evaluation system.	Questio nnaires	Automotive Industry	N/A	It was found that supplier who had obtained the highest overall performance score did not get highest performance score on every main-criterion.

Author	Country	Subject	Metho dology	Industry	Stage of PMS	Results
Syed, Bresson and Moskowitz (2007)	Yale	This paper aims to document the BSC implementation process and the associated IT framework across the sysm	Case study	Healthcare	Use	The implementation allow Managers to see key changes in the hospital almost instantly in a balance perspective so now they can take quick, corrective actions.
Harland (1997)	Spain and UK	This paper describes findings from empirical research in European Automotive aftermarket supply chains performed.	Case study	Automotive aftermarket	N/A	The author concludes that is necessary to identify each chain player's role in contributing to satisfying end customer requirement.
Sanchez, Broccardo, Sampedro and Pires	Spain, Portugal and Italy	The aim of this paper is to review all the articles published on the topic of BSC in healthcare by spanish, Italian and Portuguese authors between 1992 and 2009.	Case study	Hospital/Health/Health care	N/A	The main results were: Most of papers use the four perspectives of BSC; and the BSC is consider a control tool, and therefore cannot be consider a tool to implement the strategy or even a management tool.

Author	Country	Subject	Metho dology	Industry	Stage of PMS	Results
Hudson, Mel; Smart, Andi and Bourne, Mike (2001)	UK	Describes research undertaken to evaluate the appropriateness of strategic performance measurement (PM) system development processes for small- and medium-sized enterprises (SMEs).	Literat ure Review	Operation and Logistics	N/A	The paper concludes with a number of recommendations to facilitate the development of appropriate PM processes for SMEs.
Little, Kevin, Phil Aisthorpe, Robert Hudson, and Kevin Keasy (2000)	UK	This paper uses the experience of one of the major UK banks to illustrate how the BSC might be used as part of a strategy process which can capture bottom-up information.	Case Study	Bank	Use	The conclusion to be derived from this experience is that the implementation role of BSCs needs to be supported by a de"ned strategy formulation process.
Habidin,N. Yusof, S. Omar, H. Syed, M. & Sharul, J. (2012)	Malaysi a	The aim of this paper is to review the relationship between the strategic control system and organizational performance for Malaysian Automotive industry.	Case Study	Automotive	Use	Strategy and performance tools provide guideline and references to automotive industry especially to automotive suppliers.

Exhibit 3 - Similarities between Balanced Scorecard and *Tableau de Board*

Similarities between BSC and TdB
<ul style="list-style-type: none">• Both categorized as strategic management tools, both reflect the visions and strategies into objectives and measures and avoid the exclusive use of indicators financial (Bourguignon et al, 2004).• BSC and TdB have several benefits for a company, one of the most important, is that the group together selects a set of indicators in a single and succinct document (Manzoni and Epstein, 1998).• The approach of the two models is to relate the decisions of top managers with the actions of employees and the process works hierarchically from top to low (Bourguignon et al, 2004)

Exhibit 4 –Differences between Balanced Scorecard and *Tableau de Board*

Differences between BSC and TdB
<ul style="list-style-type: none">• The BSC uses the Porter's concept of strategy and is based on four areas of pre-categorized and reviewed, TdB is not based on any concept or specific evaluation areas, but the managers' design of strategy which implies these have an important role in the choice of areas to be assessed.• BSC is implemented top down and with the set of objectives in cascading from the top level down to below, wherein the N-level objectives are a sum of the objectives of analytical level N-1. In TdB implementation requires interaction and negotiation among various levels and includes a choice of variables local action based on idea that local managers are the ones who best know the business.• BSC strongly encourages the linking of remuneration to performance evaluation, while TdB does not give importance to this relationship, but learning (Bourguignon et al, 2004)

Exhibit 5 – Interview’s details

Respondent	Position Held	Channel	Number of interviews	Duration (minutes)	Date (day/month/year)
Respondent A	AR Director	Orally	5	250	01/01/2014 – 01/05/2014
Respondent B	Sales Man 1 ⁶	Orally	1	20	12/03/2014
Respondent C	Sales Man 2 ⁷	Orally	1	30	01/03/2014
Respondent D	Sales Man 3 ⁸	Orally	1	15	8/03/2014
Respondent E	Financial and Administrative Manager;	Orally	1	45	01/03/2014
Respondent F	Quality Manager	Orally	1	20	01/04/2014
Respondent G	Toc	Orally	2	15	04/04/2014
Respondent H	R&D Manager	Orally	2	120	03/03/2014– 05/03/2014
Respondent I	Marketing	Orally	2	20	04/04/2014

⁶ Sales Man 1 target the North of Portugal

⁷ Sales Man 2 target the center of Portugal

⁸ Sales Man 2 target the South of Portugal

Exhibit 6 – New Brand Image

Core Business	
AR EQUIPMENT	Responsible for emergency medical equipment. At this have a vast product portfolio. Given the global complexity of this area, the strategy for brand consolidation, must consider the development of new products, and enhance the existing portfolio. To achieve these goals AR needs to invest in research.
AR SECURITY	This brand develops, produces and sells armoured vehicles. Potential clients are companies transporting cash. These are organizations that have an image of the vehicle defined. Thus AR has on the credibility of builders quality market, coupled with the fact that AR cost of labour is below the one of its competitors, makes AR very competitive.
AR BUS	In this segment, AR position is inferior to its competitors. Firstly, one of the largest producing countries of mini buses is Turkey, which has labour cost equivalent to our work. Secondly, why do the transformations through the van, so AR limits our offer to vehicles with a maximum of 20 seats.
AR AMBULANCE –	There is recognition of AR quality in the segment of adapting and assembling cars for emergency vehicles (ambulances). AR transform cars in four types of ambulances: A1, A2, Band C Indeed this is the main segment where AR operates, that is the reason why this WP will focus on this core business.

Exhibit 7 – KPI'S

	Strategic Objective	# KPI	Key performance Indicator (KPI)	Detailed Explanation Of the KPI	Frequency	3 rd Round ⁹	Department
FS¹⁰	To increase sales growth by segment	1	Percentage variation of sales ratio by segment	Ratio of previous sales of each core business to current year sales of each core business. The higher the ratio the more profitable is the company. In this KPI the main goal is to know which core business is the most profitable one.	Quarterly		Financial
FS	To increase revenue from new products	2	Percentage variation of sales ratio by new products	Ratio of previous sales of new products to current year sales of new products. The higher the ratio the more profitable is the company. Since AR invest a lot in R&D, they will launch new products in the market in 2014 and 2015. This ratio it will be important to evaluate if the product will be a good impact in the market.	Annual		Financial
FS	To reduce transaction costs	6	Percentage variation of unit cost per transaction	Ratio of cost per transaction of previous year to cost per transaction of current year. Since the exportations will increase it's important AR reduce this transaction costs such as transportation, mainly, in EU transactions.	Quarterly		Financial
FS	To improve the control of the budget per activity	7	Percentage deviation from the budget per activity	AR has no management control. It is not possible to know if the company are make money or lose money in determine activity. The main goal is to control de budget in 4 areas.	Quarterly		Financial

⁹ The next step will be defining the target of each KPI.

¹⁰ Financial Section

	Startegic Objective	# KPI	Key performance Indicator (KPI)	Detailed Explanation Of the KPI	Frequency	Target	Department
CS¹¹	To create brand awareness	8	N/A	In this KPI the main goal is to create marketing campaigns in order create AR image awareness.	Weekly		Comercial
CS	To increase the level of client satisfaction	9	Index of Satisfaction of Internal Clients	This will be a survey with a range of answers between (not satisfied; very satisfied). AR wants to have a 95% clientes satisfaction.	Quarterly		Comercial
CS	To increase win rate	10	Percentage variation of win rate	In this KPI the main goal is to increase the number of accept proposal of clients. For that the company could have personalize budgets per each type of client.	Quarterly		Comercial
CS	To increase proposal rate	11	Percentage variation of proposal rate	Increase the number of budgets, with different proposals.	Quarterly		Comercial
PS¹²	Decrease time to develop next generation of products	12	N/A	AR is growing up very fast, so in order to have a continuous growth, it's important to innovate and be creative.	Annual		Production
PS	To increase labour efficiency	13	N/A	In this KPI, it is expected that the people who works in the stores reduces dead times and consequently increase efficiency. In order to achieve that, AR will give productive awards to the employees with best results.	Weekly		Production

¹¹ Commercial section

¹² Production section

	Startegic Objective	# KPI	Key performance Indicator (KPI)	Detailed Explanation Of the KPI	Frequency	Target	Department
PS	To minimize the AR's exposure to risk	14	. N/A	Since the company started to export for companies without Eurozone AR have exchange risk. There are also other risks like credit risk, since the company deals with a lot of non-profitable organizations.	Quarterly		Production
PS	To decrease ratio of timely completed orders	15	Number of completed orders per hour	This KPI, measures the average amount of time to process orders, It goes from the moment that the client assign the proposal to the moment that the client have the final product.	Weekly		Production
HRS ¹³	To increase the involvement with decisions	16	N/A	AR should started decentralize the power. Have meetings with employees and ask what they think about some project and them put them to make decisions about it.	Weekly		Human Resources
HRS	To increase employee's recognition	17	N/A	If AR started to work with quarterly goals, this is a way to understand who are the goods and efficient employees. Per each successful objective the mangers could incentive the employees by given them feedback or awards, etc This will encourage other employees to do the same.	Quarterly		Human Resources

¹³ Human Resources section

	Startegic Objective	# KPI	Key performance Indicator (KPI)	Detailed Explanation Of the KPI	Frequency	Target	Department
HRS	To increase the access to information	18	N/A	As mentioned before, the employees should share the information between departments. This will be a difficult process due to the implementation of ISO 27001. All the computers will be protected and each employee will have a password. So, in order to solve this the meetings after a week will be very important. The responsible from each department should develop a report in order to show what was doing during the week.	Weekly		Human Resources
HRS	To increase the encouragement to be creative	19	N/A	Having motivated employees is a good step to encourage them to be creative. Since AR is a company with a lot of projects for the future, if the managers combine weekly meeting to explain the projects to the employees, this could be a way to know them opinions and new ideas could perform.	Weekly		Human Resources
HRS	To increase employees motivation	20	N/A	This will be possible if the collaborators started to have more independence to make decisions. Also it will be make a survey to evaluate the satisfaction of employee in terms of: Professional career, perception on the functioning of other departments, work realization, personal and professional relationships and compensation.	Annual		Human Resources

Exhibit 8 – New Organizational Chart

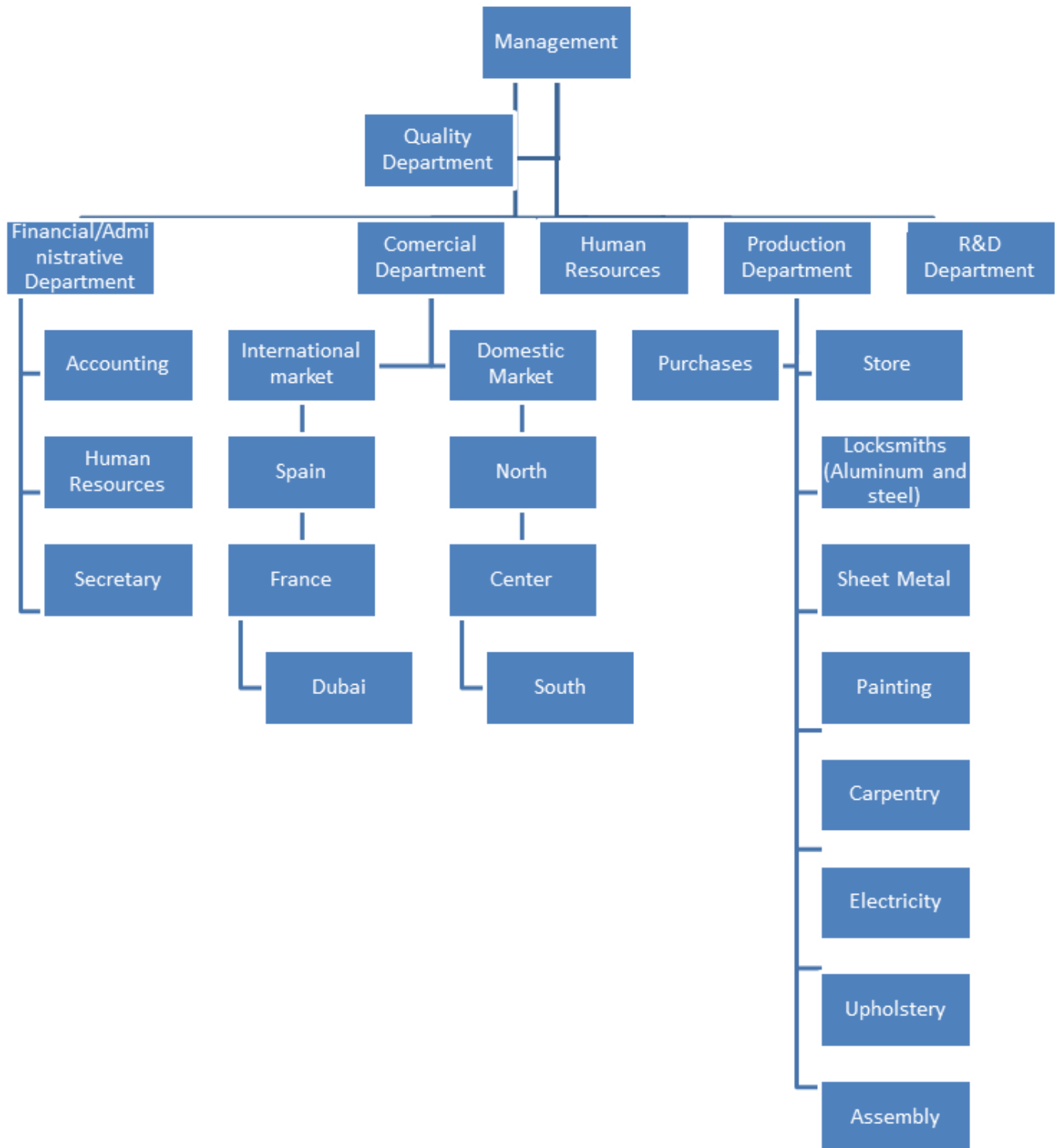


Exhibit 9 – SWOT

Strenghts

- Experience
- Know-How
- Quality
- Knowledge about the market
- First mover advantage

Weakeness

- Human resources
- Low awareness of the brand
- Control of budgets, accounting
- Lack of information to support management

Opportunities

- Expand to new markets (internationalization)
- Innovative solution in the market

Threats

- Economic crisis

Exhibit 10 - Porter's five forces model

I. Rivalry

“Auto Ribeiro has a high concentration ratio which indicates that a high concentration of market share is held by the largest firms - the industry is concentrated. There are only 3 main firms (Emergencia 2000, Futurvida and AR) holding a large market share, the competitive landscape is less competitive (closer to a monopoly). The rivalry among this three firms is low so this industry tend to be disciplined.”

Regarding the market, “AR operates in a growing market, where firms are able to improve revenues simply because of the expanding market”. “AR has a high switching costs. Costumers tend to prefer the AR cars, even if the price is higher than competition, due to the high quality and durability. AR have high exit barriers, which means that if they abandoning the business the costs will be very high. This is because the assets of AR are very specificity. The plant and equipment required for manufacturing this cars product is highly specialized since the ambulance are personalized according with the customer preference. So, these assets cannot easily be sold to other buyers in another industry since each case is unique. Also the company have raw materials which are produced only by AR.”

II. Threat of Substitutes

“The product differentiation is very important. In the car industry, typically there are many cars that are similar. However we give the opportunity for our customers personalize the car according to the needs of each customer.”

“Our main substitute service are the after sales stores, we don’t have this service officialise yet, but this year we will create another core business and create one store in Lisbon for after sales assistance. “

III. Buyer Power

“Regarding the buyer power AR we can said that the Buyers of AR have a weak power since de buyers have significant switching cost – products are not standardized and buyer cannot easily switch to another product.”

IV. Supplier Power

“Since AR produce have internal production we have just a few suppliers. In 2013 they were just 4 supplies mainly for activities such as: air condition assembly, line chars and weld. In the next table describes the cost of each supplier and the percentage of the total cost”.

V. Threat of New Entrants and Entry Barriers

In AR case there are two main forces:

- Patents and proprietary knowledge serve to restrict entry into an industry.
- Asset specificity inhibits entry into an industry

Exhibit 10 – Internationalization Strategy

COUNTRY	DESCRIPTION
SPAIN	Created in July 2012 a company (AR HISPÂNIA) , based in Vigo , which aims to be the 2nd largest seller of ambulances already in 2014 and to make about 200 vehicles
FRANCE	During the year 2013, AR starts the draft AIR FRANCE and the goal is to have about 5 % of the market in 2014, a projected market of about 1,550 units.
PORTUGAL	Reinforce national coverage and currently have three client managers to support the market. The objective is having the total control in terms of purchases of ambulances.
BRAZIL	Brazil imports are subject to heavy import rights, and purchases of ambulances are made by the State, and the contract documents, the imports are not allowed. AR plans to create a joint venture with one of the largest operators in the area of transformations who is also leader of market signalling with exchange of know-how. This company will complete the assembly of the stretchers in Brazil, and it is planned to introduce this product in Latin America. Furthermore, a factory will open in Portugal aiming to produce light motor vehicle signage, with a business plan covering distribution for Europe.

